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# TRANSACTIONS

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#### DESCRIPTIONS OF NEW NEARCTIC NEUROPTEROID INSECTS.

BY NATHAN BANKS.

(Plates I and II.)

The following new species are mostly from the United States; a few are added from Mexico. Five new genera are established in the caddice-flies, and since a number of the new forms belong to the Hydropsychidæ, I have given a synopsis of the genera of that family so far known to occur in our country.

Among the most interesting species is the new *Panorpodes* from North Carolina; the other species occurs in Oregon. This peculiar distribution is paralleled by other insects, indicating an affinity of the faunas. Altogether 47 species are described as new, the types of which are in the author's collection.

***Embia californica*** n. sp.—Pale yellowish brown, basal joint of anterior tarsi and bases of abdominal segments more reddish; everywhere clothed with short, fine hairs. Antennæ 17-jointed, about twice as long as head; head broadest at eyes, broadly rounded behind; prothorax constricted in middle, broader behind than in front, where it tapers to a blunt point; mesothorax longer than metathorax, latter united to the intermediary segment; in nymphs each bears a pair of wings longer than the segment. Abdomen as long as thorax plus head, the terminal segment narrowed toward tip; cerci longer than terminal segment, the joints subequal in length. Length 7 mm.

Three specimens from near Los Angeles, Cal. (Hutchinson).

***Elipsocus punctatus*** n. sp.—Head yellowish, ocelli on brown spot and a quadrate brown spot above it on middle of vertex, a brown spot over each eye; antennæ brown, yellowish on basal part; thorax brown, a pale stripe in front on

each side toward base of wings, and a median pale spot on metascutellum; abdomen brown. Wings hyaline, venation pale brown, dark spots at base and tip of pterostigma, and at ends of veins, those on apical part almost touch each other to form a band. Legs pale. Venation as usual in the genus, the pterostigma rather broader toward tip than in *E. canadensis*. The tip of male abdomen has two long, slender, erect, curved pieces, and a stouter, acute, median piece between them. Length 3 mm.

One specimen from San Mateo Co., Cal. (Baker).

***Psocus californicus*** n. sp.—Head grey, nasus blackish, with about 10 white lines, ocelli on black spot, and a black spot in middle of vertex, and a brown one over each eye; antennæ dark, basal joints pale; mesothorax black, with a yellow Y, and a pale band between it and the black metathorax; abdomen black above, pale below, legs pale, femora darker. Wings hyaline, venation brown, the base of fork under pterostigma white, and also the veinlet closing the cell, the posterior half of outer side of cell and the cubitus from the cell to next fork white; pterostigma white at base, rest dark brown or black, an oblique dark band across wing near base of cell, not very strongly marked, ending in a black dot at end of anal vein; two spots basad of this band. Length 3.2 mm.

One specimen from the mountains near Claremont, Cal. (Baker).

***Psocus floridanus*** n. sp.—Head pale, nasus lineate with black, ocelli on a dark spot; some small brown spots on middle and sides of vertex, antennæ brown. Thorax black, with a pale median stripe; legs pale, femora darker; abdomen brown, with pale spots toward tip. Wings hyaline, rather whitish on basal part; venation black, posterior part of veinlet closing discal cell white, as also the fork of radial sector, a spot basad of discal cell, and an elongate spot at anal angle black, the anal margin also black for some distance out; pterostigma with basal black dot, and a large spot in apical half extending behind the cell. Vertex slightly convex; antennæ rather short. Discal cell touching radial sector, fully one and one-half longer than broad at base, the tip about one-third shorter than base, the outer side slightly concave; the pterostigma angulate behind. Length 3.6 mm.

Two specimens from Biscayne Bay, Florida (Slosson).

***Psocus confraternus*** n. sp.—Head pale, ocelli on a black spot; nasus pale, with about ten black lines, a dark patch on middle of vertex; antennæ brown; thorax dull black, a yellow Y on mesothorax; legs dull yellowish, femora rather dusky above; abdomen blackish. Wings hyaline, venation mostly black, the posterior side of discal cell and the posterior part of outer side are white, also the base of fork of radial sector is white; the pterostigma has a black spot at base and a large blackish spot occupying most of its area; there are two incomplete and sometime more or less indistinct blackish bands on basal half of the wing, and a black point at end of anal vein. Hind wings hyaline, with blackish venation. Antennæ rather long, hairy, vertex straight across on top; wings moderately long; discal cell about twice as long as broad, scarcely one-third broader at base than at tip, outer side rather convex beyond middle, inner side slightly convex, the veinlet connecting radial sector to the discal cell is

about as long as the posterior side of cell; pterostigma long, broadly rounded behind. Length 4.2 mm.

Two specimens from Mt. Washington, New Hampshire (Mrs. Slosson), and Aurora, West Virginia (Heideman), also one from Brookline, Massachusetts (Johnson). This may be *Psocus bifasciatus* of Walsh, but that name is preoccupied in the genus.

**Psocus posticatus** n. sp.—Face pale yellow, clypeus black, nasus pale brown, ocelli on black, vertex brown, with a yellow spot each side; antennæ dark brown, basal joint paler; thorax brown, a yellow V in front and a transverse spot on mesoscutellum; abdomen dark brown, segments marked transversely with yellow; legs pale, tarsi brown. Wings dusky hyaline; venation black; pterostigma black, long, rather slender, rounded behind; the veinlet separating first and second posterior cells is broadly clouded with brown; and there is a dark spot at end of anal vein. Discal cell four sided, the base almost twice as wide as apex, anterior side rather convex, other sides straight; the radial sector does not fork as soon as in most species; second and third posterior cells are subequal at base, and not near as wide as the first at base. Head rather narrow, vertex straight across on top. Length 3.6 mm.

One specimen from Guadalajara, Mexico, August (McClendon).

**Psocus minusculus** n. sp.—Head pale dull yellowish, unmarked; antennæ yellowish; thorax and legs yellowish; abdomen brown. Wings hyaline, venation brown, a black point at base of pterostigma, and one at end of anal vein. Head rather large, nearly straight across on top, slightly emarginate in middle. Pterostigma truncate at base, concave behind, deep and almost pointed at outer angle; discal cell rather more than twice as long as broad, outer side concave, very plainly five-sided; the posterior cells subequal in size at base, or the middle one a trifle larger. Length 2.4 mm.

Four specimens from Falls Church, Va.

**Perla californica** Bks.—Head brown, pale reddish yellow between ocelli and on clypeus; antennæ pale brown; prothorax brown, with a trace of a paler median line, rest of thorax dark brown, with a pale median stripe; abdomen pale brown; venter pale in middle, brown on sides; femora pale brown, tibiæ paler, with a blackish band on base; setæ yellowish brown. Wings nearly hyaline, venation pale brownish; ventral plate of female pale, with a prominent rounded blackish spot each side. Pronotum plainly broader than long, anterior angles acute, posterior ones slightly rounded. Structure similar to *P. lycorias*. Length 30 mm.

Claremont, California (Baker).

Readily separated from allies by two black spots on the ventral plate.

**Perla carolinensis** Bks.—Head nearly covered by a large black spot, angulate behind in the middle, and leaving a triangular orange spot each side near base of antennæ, basal joint of antennæ mostly black, second joint yellow,

beyond brownish, pronotum dull black, rather paler on sides; thorax black; abdomen brown, pale below, toward tip it is yellowish; setæ dark brown; legs dull brown, darker at tips of joints and on the tarsi; wings grayish hyaline, venation brown. Thorax but little narrowed behind, angles acute, rugosities not very strong. Wings rather long, radial sector forked two or three times beyond anastomosis, the first some distance out from cross-vein. Ventral plate of female reaches scarcely one-half way across the next segment, and is rather deeply emarginate in the middle; the last segment of the male shows a raised, rather transverse white spot, slightly angulate in front. Length, ♀, 32 mm.; ♂, 24 mm.

One pair from Black Mountain, North Carolina, June (Beutenmüller).

***Perla valida*** n. sp.—Head pale yellow, ocelli black, clypeus dusky, each side margin black; antennæ pale yellowish; palpi brown; pronotum pale dull brown, a narrow, median yellowish stripe; thorax pale brown, a yellowish spot each side near base of wing; abdomen brownish above; venter and sternum pale yellowish; setæ pale yellow; legs pale, a black mark at tips of all femora, barely darker at tips of tibiæ, the apical part of tarsi black. Wings grayish hyaline, venation pale brown. Ocelli forming a triangle rather broader than high, the posterior ocelli a little nearer to each other than to the eyes; pronotum much narrower than the head, slightly narrowed behind, moderately rugose each side. Wings rather long and narrow, radial sector with four branches (counting one from the anastomosis), median cell with seven cross-veinlets. Length 24 mm.

One specimen from Wayneville, North Carolina, July (Sherman).

***Raphidia occulta*** n. sp.—Head shining black, mouth region pale, a long, narrow, median, red scar behind, the lateral scars not very plain; antennæ dark, basal joint dark above, next two or three pale. Pronotum reddish on anterior half, black behind, with three pale stripes; rest of thorax black, with red spot on metascutellum; abdomen black, tips of segments pale, especially on venter; legs pale. Wings hyaline, pterostigma yellow-brown, veins brown. Head with posterior sides barely convex, with a moderately long neck; pronotum rather slender. Wings with four cells below the pterostigma, the second acute at base, and often pedicellate; the pterostigma quite long, extending to tip of cell below. Male genitalia with the upper median piece broader at tip (seen from side) than at base, two upcurved hooks below it (as in allied species); the valves on venter have an even inner edge, not excavate toward tip as in *R. oblita*. Length 14 mm.

Specimens from Claremont, California (Baker); others from Prescott, Arizona (Oslar); and Pecos, New Mexico, June 21st (Cockerell). Separated from all others by shape of upper piece of male genitalia; also from *R. oblita* in shape of valves, and narrow head; from *R. adnixa* in dark basal joint of antennæ; and from *R. bicolor* in venation and shape of pterostigma.

***Chrysopa marginalis*** n. sp.—Head yellowish, a brown mark each side from eye to mouth; antennæ yellowish; thorax green, paler along the middle; abdomen greenish; legs yellowish; wings hyaline, venation green, except that most of the cross-veinlets are marked with brown at ends; in forewing the cross-veinlets (except the costals), the branches of radial sector, and the veinlets along hind margin are plainly margined with brown; in the hind wings the outer gradate veinlets are wholly brown. The forewings are rather broad beyond middle (much broader than in *C. rufilabris*) and barely pointed at tips; the divisory veinlet of third cubital cell ends beyond the cross-vein. Length 14 mm.

One specimen from the mountains near Claremont, California (Baker). Distinguished by the brown margins of cross veinlets in forewing.

***Chrysopa robusta*** n. sp.—Head broad, pale yellow, a red stripe each side on cheeks; antennæ wholly pale, close together at base, rather short; vertex low and flat, scarcely as high as the eyes in the middle; prothorax very broad, narrowed in front, reddish on sides, leaving a broad, median, yellowish stripe, with parallel sides; rest of thorax and the abdomen very broad and heavy (much broader than in other species); the mesothorax with a reddish dot each side near front; abdomen brown towards tip; legs pale yellowish. Wings hyaline, with pale greenish venation, marked with black at bases and tips of many cross-veins, the gradate veinlets wholly black, and the costals only at the subcosta; pterostigma rather distinct; hindwings similar to fore pair. Forewings rather long, rounded at tips; about eight or ten gradate veinlets in each series; the third cubital cell is about one and one-half times longer than broad, the divisory veinlet separating off only a small portion of the cell. Expanse 38 mm.

One specimen from Tyron, North Carolina (Fiske).

Readily known by its very broad and heavy body; allied to *C. rufilabris*, but separated from it and allies by shorter cubital cell, more gradate veins, flatter vertex, etc., as well as by heavy body.

***Chrysopa fascialis*** n. sp.—Head pale greenish white, two dark dots under each eye in a line toward mouth; palpi and antennæ wholly pale; thorax and abdomen entirely green and unmarked; legs pale greenish; wings hyaline, venation green, basal costal cross-veinlets and some of the anal cross-veinlets wholly black, other cross-veinlets black at bases, gradate veinlets marked with black in middle, divisory veinlet of third cubital cell wholly green; hindwings with venation colored similar to forewings, pterostigma not distinct in either pair. Wings moderately long, both pairs acute at tips; antennæ not as long as wings. Length 16 mm.

One specimen from Durango, Mexico.

***Leucochrysa antennata*** n. sp.—Head pale yellowish, vertex with two reddish stripes above, and an angulate red line in front over bases of antennæ; antennæ pale, basal joint with two reddish lines above, 8 or 10 of the next joints have a continuous red stripe on inner side; pronotum pale, an indistinct dark mark each side, rest of thorax pale; abdomen brown above, pale below; legs

pale; wings hyaline, longitudinal veins pale, the cross-veinlets almost all entirely dark brown; hindwings with cross-veinlets dark only at bases; pterostigma not very distinct in either pair of wings. Antennæ much longer than wings, latter rather short, fore pair broadly rounded at tips, hind pair acute, divisory veinlet of third cubital cell starts very close to cubital vein, two series of gradate veinlets in both wings. Length 14 mm.

One specimen from Tuxpan, Mexico, September 5th (McClen-  
don). Differs from all others known to me by red line on basal  
fourth of antennæ.

**Eremochrysa californica** n. sp.—Head yellowish, vertex somewhat reddish each side, basal joints of antennæ short, rather reddish, unmarked, rest of antennæ yellowish, dark toward tip. Pronotum short, yellowish, three short dark marks on front part, rest of thorax not very distinctly spotted on sides, pale in middle; abdomen brown; legs pale. Wings hyaline, cross-veins almost all wholly brown, the longitudinal veins are not spotted with brown, except sometimes at ends of cross-veinlets, divisory veinlet of third cubital cell dark and ending plainly beyond cross-vein. Length 8 mm.

Two specimens from Santa Clara County, California. Agrees with *E. frater* in wholly dark cross-veins, but differs in lacking dots on longitudinal veins, in shorter basal joints of antennæ, without the brown stripes, smaller size and markings of prothorax.

**Calinemurus fuscus** n. sp.—Head yellow, inter-antennal mark jet black, extending below base of antennæ from eye to eye, not extending down in median line; vertex with two dark transverse brown bands; antennæ brown, basal joints paler, with a brown mark; thorax black, a narrow median line and two stripes each side yellow, one of the latter sometimes broken into an anterior spot and a dash behind it; mesothorax and metathorax black, with many small yellow spots. Abdomen black, above narrowly yellow on basal half, with a median dark line; apical segments with a small yellow spot above, scarcely distinct; legs yellow, heavily spotted with black, especially on anterior pair, tarsal joints black on apical half. Wings rather cinereous, the veins black, in forewings many of the cross-veinlets are slightly margined with black, the longitudinal veins more or less interrupted with pale, black patches at end of the pterostigma and along the cubital vein, and at end of same, with an oblique line reaching toward the tip of wing, and a patch at end of anal vein; hindwings with black venation, the longitudinal interrupted with pale. Vertex moderately high; antennæ rather long; abdomen (of male) a little longer than wings, the last segment much shorter than the preceding, and also shorter than the slightly curved, black appendages. Wings moderately narrow, all acute at tips, the venation very dense, and the costal area mostly with three rows of cells; two rows of cells basad of the origin of the radial sector; two series of cells between cubitus and anal vein most of the way; the anal vein ending beyond origin of second fork of radial sector; apical part of wing very densely veined. Expanse 54-60 mm.

Two male specimens from Nogales, Arizona, July 6th (Osler).

**Maracandula bellula** n. sp.—Head yellow, a black inter-antennal mark extending below antennæ each side; vertex pale, with a black spot on each side; antennæ short, black, with a broad yellow band near middle covering about four joints, beyond blackish; palpi pale, last joint blackish, slender; pronotum pale yellow-gray, with a black spot on each side near front, and one in middle behind; rest of thorax brown or dull black, a yellow spot each side in front of base of wings; legs pale, the femora more or less infuscated, especially above, often black; tibiæ with a basal and a more prominent apical black band; tarsal joints barely black at tips; abdomen black, each segment with a broad whitish band at base, several of those toward base often contain a median black mark, the one on segment 2 usually connected to the black sides; wings hyaline, venation brown, broadly interrupted with white, many of the cross-veins wholly white, a black cloud near end of anal vein; and one near end of cubital vein, latter also present in the hindwings; pterostigma indistinct, a brown dot at inner base. Body with long black and some white hairs. Expanse 35–40 mm.

Three Rivers, California (Baker); Reef, Arizona (Biederman); and Phoenix, Arizona (Kunzé).

This is what Mr. Currie has identified as the *Myrmeleon pygmaeus* of Hagen. But Hagen's description differs from this species in many particulars. He says that his species has a black face, with yellow spots; that the prothorax is fuscous, varied with yellow; that the abdomen is pointed with fuscous; and that the legs are spotted with black; all of which is strikingly contrary to this species. Moreover, his statements about the antennæ and wings do not fit this species. In fact I see nothing in his description, save that it is a small species without spurs, that will suit the species before me.

**Dendroleon speciosum** n. sp.—Head pale yellowish; a broad, deep black inter-antennal band, truncate above and below, and a dull black band on vertex from eye to eye; antennæ brown, as long as head and thorax; pronotum pale, thickly dotted with black, a black median stripe, a line from furrow curving back each side, margined by a pale line, and beyond a blackish patch; rest of thorax mostly dull black above, a pale spot on each lobe, and each side on the mesoscutellum; pleura with a broad black stripe through the middle; abdomen black, a small, yellowish, hastate mark above in middle of each segment; legs pale, femur I mostly black, except at base and on inner side; tibiæ dotted with black, especially on base, and tarsal joints beyond the second are blackish; leg II more blackish, but the first tarsal joint wholly pale; leg III with broad black band on basal half of femur and the apex black, tibia dotted with blackish, and black at tip, third and fourth tarsal joints blackish. Legs very slender, first tarsal joint longer than next three together, spurs longer than joints one and two together, curved and slender. Wings hyaline; venation pale, marked with black, median vein almost wholly black; many cross-veins black and margined with black, most of those between median and cubitus very broadly margined with black; a large black spot on anal margin half-way out to the end of anal



vein; a curved black mark from end of anal vein upward and outward, another mark along one of cubital branches toward the preceding mark, nearly meeting to form a semi-circle, and enclosing one or two black spots; an oblong black mark at pterostigma, and an oblique band in apical part of wing parallel to the apical margin. In hindwing the venation is marked with black, there is a rounded black spot at the pterostigma, and a small elongate one near apex. Expanse 54 mm.

One specimen from Boulder, Colorado, July 31st (Osler).

Differs from *D. obsoletum* in that there are a great many more small spots in the wings, and the large ones are not as large, as well as in coloration of legs, head and thorax.

**Panorpa carolinensis** Bks.—Head yellowish, black around ocelli; antennæ brown; thorax brownish yellow; abdomen and legs yellowish. Wings hyaline whitish, with black bands and spots as follows: an apical band, a broad pterostigmatal band, nearly touching the apical at each margin, and with a pale spot on the posterior border, where the band is broader than elsewhere, a large triangular costal spot near middle of wing, and extending almost half way across it, a broad (not geniculate) sub-basal band, and a costal and anal spot black; venation dark. Wings slender, the subcosta reaches pterostigma in forewings; in the male the 5th segment has a distinct horn above. Length 15 mm.

One male from Black Mt., North Carolina (Beutenmüller).

Probably nearest to *P. rufa*, but the wings are less elongate, and membrane not yellowish, nor venation pale in pale areas; the bands are broader, and not geniculate as in that species.

**Panorpodes carolinensis** Bks.—Pale yellowish; a little black around ocelli; antennæ black, except joints one and two; legs without dark marks; abdomen dark above on basal two-thirds; tip of the claws of genitalia dark; wings flavescent, with yellowish longitudinal veins and white cross-veins. Face short, triangular, a stout tooth below each eye, extending from cheek; wings rather narrow, the subcosta runs into the pterostigma; abdomen slender, segments not modified, except the last, which is similar to that of *Panorpa*. The prothorax has four long black bristles above, and there are two on each side of the mesothorax. Length 16 mm.

One male from Black Mt., North Carolina (Beutenmüller).

Agrees with *P. oregonensis* McLach. in many particulars; but has darker antennæ, and the terminal abdominal segment has longer claws, each with a strong basal tooth, and the median piece that projects below, when seen from the side, is shorter, and has a concave upper margin.

**Colpotaulius medialis** n. sp.—Head rufous, with some yellowish bristles, vertex with a short black mark on middle behind; palpi yellowish; antennæ yellowish red, including basal joint; prothorax large, two and one-half

times as broad as long, tuberculate above, rather dull yellowish red, with a narrow, black, impressed median stripe, rest of thorax similar in color, the black stripe extending across mesothorax, but broader; abdomen brownish yellow, paler beneath; legs pale yellowish, with black spines. Forewings clothed with short yellow hair, indistinctly irrorate with pale brown, more distinct on anal region, costal and subcostal areas unmarked, venation red-brown, very distinct; hind wings hyaline, faintly grayish at tips. The forewings are rather narrow, the outer edge oblique, the discal cell much longer than its pedicel, fork 1 barely extending upon discal cell, fork 3 acute at the anastomosis in both wings; outer margin of hind wing strongly indented just behind end of fork 5. Expanse 27 mm.

Specimens from Ithaca, New York; Muskoka, Ontario, Canada; and Lake Forrest, Illinois.

I had considered this to be *C. consocia* Walk, but recently have received an allied species, with basal joints of antennæ black; thus agreeing better with *C. consocia*. Both have the dorsal black stripe. *C. consocia* is smaller, and the fork 3 of all wings is pedicellate, not reaching the anastomosis; the markings are heavier in the middle of the wings, and paler in anal region. I have it from New Hampshire.

#### PYCNOPSYCHE new gen.

A Limnephilid; spurs 1-3-4; ocelli rather small; pronotum of two rather prominent bristly lobes, more prominent than in *Stenophylax*; thorax with a bristly wart at base of each wing, and a pair of smaller, elongate ones near middle of mesothorax; wings very broad at the pterostigma, costal margin much rounded, apical margin oblique; membrane granulate; discal cell longer than pedicel, apical half on upper side concave, fork 2 goes back no further than fork 1; in hindwings fourth apical cell has an oblique base, but just before base is narrower than second apical cell.

Type.—*Limnephila scabripennis* Rambur.

Hagen put it in *Halesus*, Walker described it as a *Neuronina*; I have kept it in *Stenophylax*, but it is better in a new genus.

**Stenophylax (?) parvulus** n. sp.—Face pale, clothed with pale hair; vertex brown, with whitish hair, behind are two large transverse yellow warts bearing yellowish hair; antennæ pale, basal joint rather long, clothed above with yellowish hair; prothoracic lobes yellow, clothed with long white hair; thorax brown, with some yellowish hair; abdomen brown; legs very pale yellowish, with black spines; wings pale, veins brownish, bearing erect, black hairs; membrane with very short, fine, yellowish and blackish hair, scarcely visible, some brown marks along the median vein and apical sectors, especially prominent at thyridium and at base of the fifth apical cell; hind wings whitish

hyaline, venation yellowish, rather more yellowish in the pterostigmatic region. Forewings narrow, costal area narrow, discal cell not closed, no trace of the cross-vein in either wing, first and fifth apical cells acute at base and not extending before anastomosis; radius slightly bent at the pterostigma; apical margin of wing faintly rounded; hind wings have the margin entire, the discal cell faintly closed in one wing, not in the other, first and fifth apical cells acute at base. Spurs 1-3-4. Expanse 18 mm.

One specimen from Hampton, New Hampshire, May 17th (S. A. Shaw).

**Rhyacophila hyalinata** n. sp.—Head black, with sparse yellow and white hair; antennæ pale, each joint with a brown band; palpi pale; prothorax with yellow lobes, rest of thorax blackish; abdomen blackish above, yellowish below. Legs pale yellowish, tibia I unmarked. Wings brownish hyaline, venation brown, except yellow subcosta and radius, pterostigma dark brown at base, paler beyond, apical part of wing with numerous patches of white; a whitish hyaline mark on median vein at forking, extending down on connecting veinlet toward cubitus; hind wings grayish hyaline, pterostigma very distinct dark brown, venation yellow-brown. Length 14 mm.

Several specimens from southwestern Colorado, July 22d (Osler). Similar to *R. fuscula*, but not as dark, smaller, and with no dark mark on anterior tibiæ.

**Rhyacophila coloradensis** n. n.

*R. stigmatica* Bks. Trans. Am. Ent. Soc. xxx, p. 108, 1904.

I changed this in the explanation of the plate, but forgot to do so in the text—there is an *R. stigmatica* in Europe.

**NAMAMYIA** n. gen.

A Sericostomatid. No ocelli; spurs 2-4-4; antennæ short, basal joint longer than head; wings broad, closed discal cells in both fore and hindwings, in forewings a cross-vein connects radial sector to radius; all five forks in forewings, three and four pedicellate.

Type.—*N. plutonis*.

**Namamyia plutonis** n. sp.—Jet black throughout, hindwings scarcely as dark as forewings; a black point in base of third apical cell in forewing, clothed with moderately long black hairs. Antennæ much shorter than wings, stout, basal joint longer than head, clothed with long, semi-erect hairs. Vertex broad, with a large wart each side, crowned with erect bristles; lobes of prothorax large and crowned with erect bristles. Legs rather long, thickly clothed with hair; spurs long; subapical pair of middle tibiæ at end of second third, in hind tibiæ beyond second third; hind tibiæ plainly longer than hind femora, middle tibiæ as long as femora; first joint of hind tarsus longer than second and third together. Hind wings broad, not much shorter than fore pair, and as in

fore pair there is a connecting veinlet from radial sector beyond the fork back to the radius. Expanse 36 mm.

One specimen from Santa Clara County, California (Baker); also from Humboldt County, California (Barber).

**Goera fuscula** Bks.—Maxillary palpi with golden or tawny hairs; antennæ dull black; labial palpi pale on basal part, black beyond; vertex black, golden hairs on the posterior warts; thorax black, some golden hairs form a median stripe on the mesonotum; abdomen dull black; wings uniformly clothed with blackish hairs, venation darker; legs pale brownish, the posterior tibiæ and tarsi paler. Ventral comb of two rather long median teeth, and three each side much smaller. Venation as usual in the genus. Expanse 22 mm.

One male from Black Mt., North Carolina, May 21st (Beutenmüller).

### NOTIOPSYCHE n. gen.

Maxillary palpi short, broad, flattened, erect and appressed to face; labial palpi extremely long and slender: basal joint of antennæ porrect, longer than head; two spurs on tibia I, others lost, probably 4-4; discal cell in both wings closed; forks 1, 2 and 3 in forewings of male; forks 1 and 3 present in hind wings. Forewings of male very broad, costal area very broad, but the median area is still broader, the median and cubital veins close together and bent toward the posterior margin.

Type.—*N. latipennis* n. sp.

**Notiopsyche latipennis** Bks.—Face gray, with short gray hair; vertex darker, with longer yellowish gray hair; basal joint of antennæ clothed inside with black hairs, longer below, elsewhere with gray hair, rest of antennæ pale, annulate with black, and below with short, erect bristles; prothorax with gray hair above, rest of thorax yellowish; abdomen brown, tip and genitalia yellow; legs pale yellow; wings gray, with yellow-gray hairs, sparse and appressed; along costal margin are longer, darker hairs, pointing back over costal region; venation pale brown; hindwings grayish, venation darker, some scattered yellowish gray hair on membrane; cubitus with two apical branches, apparently no anal veins; discal cell nearly three times as long as its pedicel, narrowed near tip; cross-vein between radial sector and median is oblique. Expanse 20 mm.

One male from Black Mt., North Carolina, June (Beutenmüller).

### ATOMYIA n. gen.

Palpi like *Lepidostoma*; basal joint of antennæ scarcely as long as head, thread not ciliate; spurs 2-4-4; wings rather long and slender; discal cell closed in both pairs; forks 1, 2, 4 and 5 present in forewings; forks 1 and 3 present in hindwings; discal cell in

forewings not very long; the anal vein runs into an oblique vein from the cubitus, parallel to fork 5, which is part of the disjointed anastomosis; no cross-vein between radial sector and median vein.

Type.—*A. modesta* n. sp.

**Atomyia modesta** Bks.—Maxillary palpi dark gray, labial palpi blackish; basal joint of antennæ black, beyond pale, narrowly annulate with dark; head black, gray hairs in front, yellowish above from the warts; thorax brown, yellowish tufts at base of the forewings; abdomen dark brown above, yellowish beneath; legs pale yellowish. Wings gray, sparsely clothed with blackish hairs; venation mostly yellow-brown, fringes dark gray, rather long, especially so on the posterior margins. Preapical spurs on hind tibiæ once and one-half their length before tip; preapical spurs of middle tibiæ about twice their length before tip, and nearly as close to base. Discal cell much narrowed before the tip, about half as long as its pedicel. Expanse 14 mm.

Specimens from Black Mt., North Carolina, May (Beutenmüller).

**Sphinctogaster lutescens** Provancher.—Head black, with few long white hairs; antennæ and palpi pale; thorax pale yellow, an oblong spot in middle of base, and a spot each side at base of wings, dark brown, long yellow or white hairs in tufts; abdomen brown above, yellowish below; legs pale yellow. Head transverse, antennæ at base widely separated, the basal joint not very long, not longer than vertex; antennæ scarcely as long as wings; vertex with a median carina, and an elongate wart each side near posterior margin. Spurs short, 2-4-4; subapical pair on middle tibiæ plainly beyond second third, in hind tibiæ they are six times nearer to tip than to base; hind tibia swollen near tip and curved, much longer than femur; middle tibia shorter than femur. Abdomen compressed, in male swollen below, and obliquely truncate at tip. Wings pale yellowish, with short, sparse pale hair, venation of forewing as figured, in hindwing the discal cell is open, and there are no furrows. There are a few small spines on middle and hind tibiæ. Expanse 20 mm.

Three specimens from Ithaca, New York.

The shape of the male abdomen is peculiar, but the broad head and widely separated antennæ are of more generic importance.

**Sphinctogaster nigrosoma** n. sp.—Similar in structure to *S. lutescens*. Differs in having palpi dark, basal joint of antennæ black and black haired, beyond pale, with brown tips to joints. Thorax deep black; femora of legs black, except extreme tips; abdomen brown. Wings rather darker than *S. lutescens*, with gray fringe. More black hairs on vertex. Expanse 24 mm.

One female from Ithaca, New York.

The genera of Hydropsychidæ known to me as occurring in North America may be separated by the following table:

1. Spurs 3-4-4; radial sector connected to radius above discal cell; no ocelli...2.  
     Spurs 1 or 2-4-4.....6.
2. No cross-vein in costal area; discal cell in hindwings closed..**Neureclipsis**.

- A cross-vein in costal area.....3.
3. Discal cell in hindwings closed .....4.  
 Discal cell in hindwings open.....5.
4. Middle tibiae of female dilated; maxillary palpi shorter; smaller species, less marked..... **Holocentropus**.  
 Middle tibiae of female not dilated; maxillary palpi longer; larger, more marked species ... **Plectrocnemia**.
5. Fork 1 present in forewings..... **Polycentropus**.  
 Fork 1 absent in forewings; antennæ strongly crenate ..... **Cyrnus**.
6. Radial sector connected to radius above or near discal cell..... 7.  
 Radial sector not connected to radius; discal cell short; no ocelli; all five forks present in forewings ..... **Hydropsyche**.
7. Ocelli present; no depression in front part of the mesonotum; fork 1 present in forewings .....8.  
 No ocelli.....11.
8. Fork 4 absent in forewings..... **Wormaldia**.  
 Fork 4 present in forewings .....9.
9. No closed discal cell in hindwings .....10.  
 A closed discal cell in hindwings..... **Philopotamus**.
10. A cross-vein from fork 4 up to median vein; fork 4 arising a long distance before anastomosis ..... **Pellopsyche**.  
 No cross-vein from fork 4 up to median vein; fork 4 arising scarcely width of cell before anastomosis..... **Atopsyche**.
11. Hindwings much broader than forewings; antennæ much longer than wings; all forks present.....12.  
 Hindwings barely, if any, broader than forewings; antennæ rarely as long as wings.....13.
12. Radius runs into subcosta near tip..... **Macronema**.  
 Radius runs into wing margin, not into subcosta..... **Potamyia**.
13. No closed discal cell in hindwings; fork 1 not present in forewings; mesonotum with a depression in front containing two rounded warts...14.  
 A closed discal cell in hindwings; fork 1 present in forewings; mesonotum without depression .....15.
14. Middle tibiae and tarsi of female dilated; third joint of maxillary palpi not longer than the second or fourth..... **Psychomyia**.  
 Middle tibiae and tarsi of female not dilated; third joint of maxillary palpi longer than either the second or the fourth ..... **Tinodes**.
15. Two spurs to tibia I; size large ..... **Arctopsyche**.  
 One spur to tibia I; size small; (according to figure) no costal cross-vein. **Smicridea**.

**Hydropsyche oslari** n. sp.—Head dark brown, sparsely clothed with white hair, some black on hind part of vertex; palpi dark brown, with brown hair; antennæ yellowish, spirally annulate with brown, scarcely as long as wings; thorax brown, with short, white hair in middle, longer yellow hair at base of wings; abdomen brown, apex yellowish; legs pale yellow, with white and yellow hair. Wings brown, densely irrorate with white, a subapical part with few marks, apical fringe dark, with several white spots, fringe at outer anal angle black; hind wings faintly gray, with gray fringe. In hind tibiae the sub-

apical spurs are beyond end of second third; in middle tibiæ the subapical spurs are plainly before middle and scarcely more than their length beyond base. Expanse 20 mm.

Several specimens from southwestern Colorado, July 16th (Oslar).

**Hydropsyche hageni** n. sp.—Head black, some brown hairs on face, grayish white above, a tuft of brown hair each side behind near eye, palpi brown; antennæ pale, spirally annulate with brown; thorax with whitish hair in the middle, and a large tuft of long, brown hair each side at base of the forewings; abdomen pale on base, brown toward tip; legs pale, rather darker toward tips, especially in anterior pair. Wings brown, darkest along the veins, irrorate with white, pterostigma brown, and a dark brown spot near upper tip of the first apical cell; hind wings gray hyaline, brown on tip. Male has eyes large, and scarcely their diameter apart. On the middle legs the preapical spurs are a little nearer to base than to tip, on the hind legs the preapical spurs are nearly twice their length before the tip. Wings much like *H. scalaris*. Expanse 17 mm.

Several specimens from Falls Church, Virginia. Readily separated from *H. scalaris* by the large eyes of the male.

**Hydropsyche slossonæ** n. sp.—Head brown, with a transverse brush of brown hair just below base of antennæ, vertex with gray hair, and a tuft of brown hair each side behind; palpi brown; antennæ pale, spirally annulate with brown; thorax black, mesoscutellum yellowish, some pale hair in middle, dark at bases of wings; abdomen black above, brown below; legs pale, rather darker on the tibiæ. Wings brownish, densely irrorate with whitish, the larger brown patches being along the apical margin; hindwings grayish. In the male the eyes are fully one and one-half their diameters apart. On the hind tibia the preapical spurs are at the base of the outer third; on middle tibia they are much nearer to the base than to tip, in fact only about their length from the base. Wings rather long and slender; first apical cell twice as long as its pedicel, fork 3 with a pedicel more than twice as long as pedicel of fork 2. Expanse 22 mm.

One pair from Franconia, New Hampshire (Mrs. Slosson).

**Hydropsyche cockerelli** n. sp.—Head brown, with a transverse brush of brown hair below base of antennæ, vertex with whitish hair; palpi pale brown, tips paler; antennæ pale, spirally annulate with brown; thorax black, pale hairs in middle of mesothorax, abdomen dull black above, brown below, genitalia yellowish, with a black spot near the middle of each lower appendage; legs pale yellowish. Wings brown, darker on anal region than elsewhere, densely irrorate with small yellowish spots; hind wings grayish, fringe blackish. In male the eyes are a little more than diameter apart. In the hind legs the preapical spurs are at the base of the outer third on the tibia, on the middle legs the preapical spurs are somewhat before the middle of the tibia, but plainly more than length from the base. Forewings of moderate length, first apical cell fully twice the length of its pedicel, fork 3 with a pedicel scarcely twice as long as that of fork 2. Expanse 23 mm.

Several specimens from Pecos, New Mexico, June 26th.

**Hydropsyche bifida** n. sp.—Pale brown, head with yellowish and gray hairs above; palpi pale brown; antennæ pale, spirally annulate with brown; legs pale yellow; thorax brown, grayish in the middle above; abdomen pale, with a black stripe on each side. Wings pale brownish hyaline, indistinct darker spots along the outer margin, clothed with yellowish and blackish hairs; hind wings paler, and with long pale gray fringe. Head of male broad, the eyes widely separated; middle tibie with the preapical spurs much before middle, scarcely beyond first third; in the hind legs the preapical spurs are at about end of second third, one and two-thirds their length before the tip. The wings are moderately slender and of usual venation. Expanse 16 mm.

One pair from Ft. Collins, Colorado.

Readily known by the shape of the upper plate of male genitalia.

**Hydropsyche kansensis** n. sp.—Pale yellow throughout, face with short white hair; basal joint of antennæ rather reddish, others faintly darker at tips; vertex with short white hair; yellow hair on thorax. Wings pale yellow, clear, with few yellowish hairs, venation yellowish, but the anastomosis and some veins near by are brown; fringe short, mostly dark gray; hindwings pale, with pale venation. Eyes of male rather small; wings elongate, and rather narrow, the third fork with a much longer pedicel than fork 2; antennæ twice as long as wings; subapical spurs on hind tibie are at end of second third; subapical spurs on middle tibie are at middle, and much more than their length from base. Length 9 mm.

Several from Douglas Co., Kansas, June, July, August (Snow).

**Arctopsyche irrorata** Bks.—Head dull dark brown, with some yellowish hair; palpi yellowish; antennæ clear yellowish, basal joint brown; thorax and abdomen brown, pleura yellowish; legs pale yellowish, the tibie and tarsi very pale. Wings brown, densely irrorate with yellow, mostly in the form of rounded spots, about a dozen of these along the costal region, the brown sometimes forming bands; hindwings gray. Forewings rather long, the radial sector connected to radius beyond the discal cell, fork 1 with a pedicel one-half its length, fork 4 and 5 of about equal length. Expanse 32 mm.

One specimen from Black Mt., North Carolina, June (Beutenmüller).

**Holocentropus placidus** n. sp.—Head black, above with white hair; palpi brown; antennæ pale yellowish, darker on tips; prothorax with gray hair; mesothorax gray in middle, rest of thorax and abdomen black; legs pale yellowish. Wings often nearly hyaline, barely marked with brown and yellowish spots in apical and anal regions; when fully marked, densely irrorate with brown and yellowish or whitish; mostly in form of narrow irregular bands, a larger spot at arculus, a distinct one at pterostigma, and several others of large size on costal region, also a dark brown one at middle of cubital vein; hindwings dusky, venation darker. Forewings rather slender, discal cell about one-half the length of its pedicel, fork 1 not pedicellate and broad at base; fork 3 with pedicel scarcely



one-third its length; fork 4 sometimes absent, its pedicel about twice its length, the median cell thus extremely long. Expanse 14 mm.

Many specimens from Washington, D. C., August.

***Polycentropus carolinensis*** Bks.—Head densely clothed with yellowish gray hair in front, and blackish behind; palpi pale; antennæ yellowish, very strongly crenate within; prothorax with yellowish hair; rest of thorax and the abdomen brown, former with some yellowish hair; legs pale yellowish, tarsi rather darker. Wings uniformly clothed with jet black hair, and with about twenty small snow-white spots, several arranged in an irregular, broken band across wing near middle, two at the pterostigma, one or two at posterior apical angle, one at arculus, and two or three on the apical margin, those in basal part of wing indistinct; a tuft of erect black hair at base of forewings; posterior wings blackish, with darker venation; discal cell slender, as long as its pedicel; fork 1 not as long as its pedicel, fork 3 longer than its pedicel, fork 4 reaching basad of fork 3, but with a long pedicel; fork 5 reaching much farther toward base. Expanse 13 mm.

One specimen from Black Mt., North Carolina (Beutenmüller).

***Polycentropus dispar*** n. sp.—Head black, with black bristles and white hair; palpi brown; antennæ pale, the joints tipped with black; thorax dark, with some black bristles and pale or whitish hairs, mostly on the middle; abdomen yellow-brown; legs yellow, the tibiæ dark, and the tarsal joints dark, except the extreme base of each joint is snow-white. Wings dark, irregularly clothed with dark hairs, in places jet black, forming patches and streaks; the apical part of wings mostly dark, ending in an irregular band, beyond paler; the middle area mostly occupied by a pale triangle; a large pale spot behind anastomosis, containing a black spot; fringe mostly brown, some white patches; hindwings dusky, darker at tips. It agrees quite closely in venation with *Polycentropus* (as restricted by McLachlan); no closed cell in hindwings, and all the forks are present in the forewings, an oblique cross-vein in costal area; but I cannot see any subapical spur on leg 1, in fact I think there is but one at the tip, which is small and appressed to the leg. Expanse 11 mm.

Specimens from Tucson, Arizona, June 5th (Oslar).

***Polycentropus arizonensis*** n. sp.—Face brown, vertex black, with scattered black bristles; palpi pale; antennæ pale yellowish brown; thorax black, with black hair; pleura yellowish; abdomen yellowish on base, brown toward tip. Legs rather bright reddish yellow; spurs pale yellow, the tibiæ on outer side clothed with short black hair. Forewings dark brown, with short black hair, especially along the veins; there are many patches of golden hair, especially along the costa, near pterostigma and on apical margin, and a larger one above the arculus. Hind wings blackish, darkest on costal margin toward tip. Antennæ slightly crenulate on inner side; spurs 3-4-4. Upper branch of radial sector forked fully one-half way out from anastomosis; lower branch of median forked beyond upper branch. Expanse 22 mm.

Specimens from the Huachuca Mountains, Arizona, August 20th (Oslar).

**Plectrocnemia auriceps** Bks.—Head with much golden hair; palpi yellowish brown, basal joint of antennæ yellowish, beyond dark brown, strongly crenate within; prothorax yellow, with golden hair, and golden tufts on mesothorax in front; thorax and abdomen brown, margins of abdominal segments narrowly yellowish; legs yellow, hind tibiæ brown. Wings brown, densely marked with patches of golden hair between the veins, which are brown; a larger spot at the arculus; fringe golden, interrupted with brown at tips of the veins; discal cell not one half as long as its pedicel, fork 1 not pedicellate, fork 3 with a pedicel not one-half its length; hindwings blackish. Expanse 27 mm.

One male from Black Mt., North Carolina (Beutenmüller), June.

**Cyrnus fraternus** n. sp.—Head with whitish hair in front, brown from the posterior warts; palpi brown; antennæ pale yellowish, narrowly annulate with brown; thorax and abdomen brown, former with yellowish and gray hair; legs very pale yellowish. Wings uniformly pale brown, clothed with yellowish and black hair; fringe mostly black, especially so at outer apical angle; hindwings dusky, fringe dark. Forewings rather long and narrow; fork 3 has a pedicel nearly as long as self, fork 4 but little longer than 3. Expanse 10 mm.

Several specimens from Plummer's Island, Md., August.

Differs from *C. pallidus* in larger size, in longer fork 3, in darker color, and in genital parts.

#### ATOPSYCHE n. gen.

A Hydropsychid rear *Philopotamus*; spurs 2, 4, 4, three distinct ocelli, both branches of median vein forked, and the forks very long. Differs from *Philopotamus* in that the discal cell is long, and placed before middle of wing, the apical cells all being remarkably long. In hindwings the discoidal cell is not closed. The maxillary palpi are slender, the last joint nearly as long as the preceding one. There is a median elevation upon the face.

Type.—*A. tripunctata*.

**Atopsyche tripunctata** n. sp.—Head brown, face with black bristles and some white hair intermixed. A tuft of gray hair between antennæ and one on middle of vertex behind; basal joints of the antennæ black, others brown, tipped with pale. Mesothorax brown, with tufts of black bristles and white hairs. Metathorax paler; abdomen pale, darker above than below; legs pale; anterior femora dark; fore and middle tibiæ dark, with a yellow band just beyond middle, and a yellow tip; basal tarsal joints dark. Wings brown, with long black bristles on veins, semi-erect; scattered over the surface, mostly in apical part, are many white hairs in patches, elsewhere brown and black hairs; pterostigma very heavy and dark, a pale spot at base and another at tip; pale spots on apical fringe at end of each vein. In the membrane of wing are three narrow hyaline spots, one on arculus, one on median vein just before the connec-

tion to cubital, and one on forking of lower branch of median and extending upward to the anastomosis. Fringe at outer apical angle rather long and black. Hind wings dusky, darkest at tips, fringe blackish and quite long on hind margin. The forewings are rather slender, the apical margin oblique; the discal cell is more than twice as long as broad and ends under base of pterostigma, the apical cells much longer than width of wing at widest part; the upper branch of radial sector forks just under tip of pterostigma; the forking of lower branch of median is under the anastomosis, that of upper branch one-third the way out. The abdomen of the female shows on the under side near tip two prominent median spines, arising from the second and third segment before tip. Expanse 24 mm.

One specimen from the Huachuca Mountains, Arizona, August 22nd, 8000 feet (Osler).

**Wormaldia mediana** n. sp.—Head brown, with yellow hair; ocelli small, but distinct, a dark brown, obliquely transverse wart each side on vertex, palpi dark brown, last joint slightly longer than preceding, and a trifle curved; antennæ yellowish, brown toward tips; prothorax dark brown; thorax paler brown, all with yellow hair; abdomen brown above, yellowish beneath; legs pale yellowish, with brown spurs. Wings brownish, sparsely clothed with short golden hair, the anastomosis and the veinlet connecting median to cubitus at base of thyridial cell are hyaline-white; venation brown; hindwings dusky, with gray hair and fringe. In forewings forks 1 and 2 reach discal cell, fork 3 long-pedicellate, fork 5 not reaching connecting veinlet to median; a straight cross-veinlet in middle of costal area, and an oblique cross-veinlet from discal cell to radius. Length 7 mm.

One specimen from Chinandega, Nicaragua (Baker).

#### **NOTIOMYIA** n. gen.

A Leptocerid; spurs 2-4-4; palpi upcurved; basal joint of antennæ rather short; no ocelli; discal cell of forewings very indistinctly closed, if at all; a long furrow through the forewing much as in *Scelis*. Venation as figured.

Type.—*N. mexicana* Banks (sub *Heteroplectron*).

**Notiomyia mexicana** Banks.—Black throughout, except the abdomen and the prothorax above and below which are reddish yellow. Antennæ nearly twice as long as the wings; vertex long, with a median carina, a crest of bristles above base of antennæ, an elongate wart each side near posterior margin crowned with erect bristles, elsewhere the vertex is smooth. Legs rather long, spurs rather short, the preapical pair on middle tibiæ at about middle, those of hind tibiæ near end of second third; hind tibiæ scarcely as long as femora, middle tibiæ much shorter than femora; basal joint of hind tarsus as long as rest of joints together. Wings clothed with black hairs, and in apical part many small glittering scale-like hairs; the furrow in forewings furnished with black hair. Expanse 26 mm.

Two specimens from Huachuca Mountains, Arizona (Osler).

Similar to the type from Mexico, but in better condition, so I give another description.

**Setodes floridana** n. sp.—Head yellowish, clothed with golden hair; palpi clothed with gray hair; antennæ pale, narrowly annulate with brown; thorax pale, with golden hair; legs pale yellowish; abdomen yellowish. Wings gray, clothed with short golden hair and some black hair intermixed, the anastomosis and extreme tip darker, fringe black at tip, elsewhere gray; hindwings dusky hyaline, scarcely darker at tip, fringe very long, gray. Both pairs of wings very long, slender and acute. Expanse 13 mm.

One specimen from Biscayne Bay, Florida (Slosson).

**Leptocella texana** n. sp.—Head yellowish, clothed with snow-white hair; palpi brown, with white hair; antennæ white, broadly annulate with black, apical part wholly black, basal joints yellowish; thorax yellowish, with short white hair through the middle; abdomen yellowish; legs pale yellowish. Forewings white, veins bordered with yellow-brown or brown, especially prominent beyond the anastomosis, anterior and posterior margins more or less brown, several brown spots at pterostigma; fringe gray; hindwings pale gray, with pale venation and gray fringe. Forewings hardly as narrow as in other species, the discal cell swollen above toward apex, but not as much so as in *L. exquisita* and allied forms, the first apical cell with a pedicel as long as cell, the fourth apical cell with a pedicel almost as long. Expanse 22 mm.

One specimen from San Antonio, Texas, August.

**Leptocella exilis** n. n.

*L. gracilis* Banks, Trans. Amer. Ent. Soc., xxx, p. 110, 1904.

As there is a previous *gracilis* in this genus I rename this species.

**Aniscentropus fuscus** n. sp.—Head subglobose, black, densely clothed with short white hair; antennæ very long, white, annulate with black, basal joint large and as long as vertex; palpi long, hairy, upcurved, gray, last joints recurved. Thorax convex, brown, clothed with appressed white hair; abdomen brown; legs pale yellowish, the hind femora at base blackish, tips of tarsi brown. Middle legs much the longest, spurs 1-4-2, the subapical pair on middle tibiae near base. Wings clothed with white and brown hairs forming a gray appearance, a black basal spot, one near middle of hind margin, one at base of discal cell, an elongate spot at lower end of discal cell, a spot at end of pterostigma, and extreme apical margin black, extending up on veins, fringe blackish; hindwings smoky, darker on costal margin toward tip, posterior fringe rather long, gray. Forewings narrow, elongate, sides subparallel, fifth apical cell with a long pedicel; hindwings narrow, closed discal and thyridial cells, the former connected by cross-vein to radius. Expanse 15 mm.

Two specimens from Phoenix, Arizona.

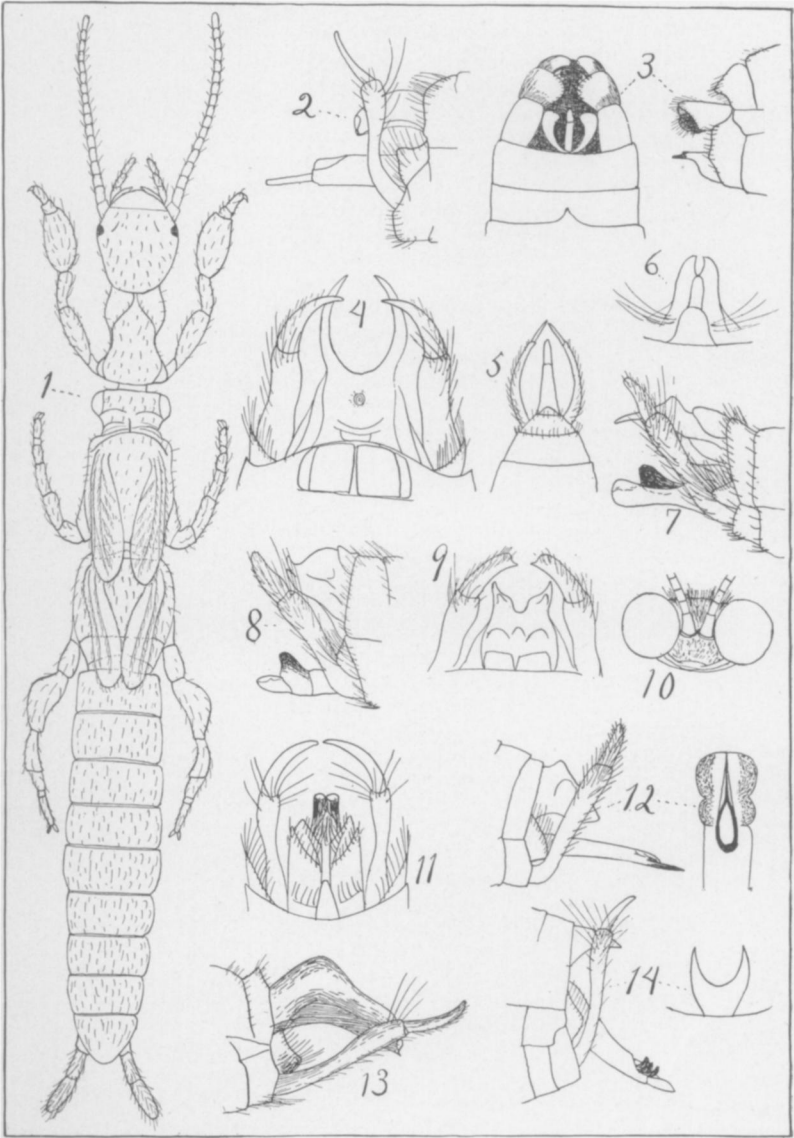
## EXPLANATION OF PLATES.

## PLATE I.

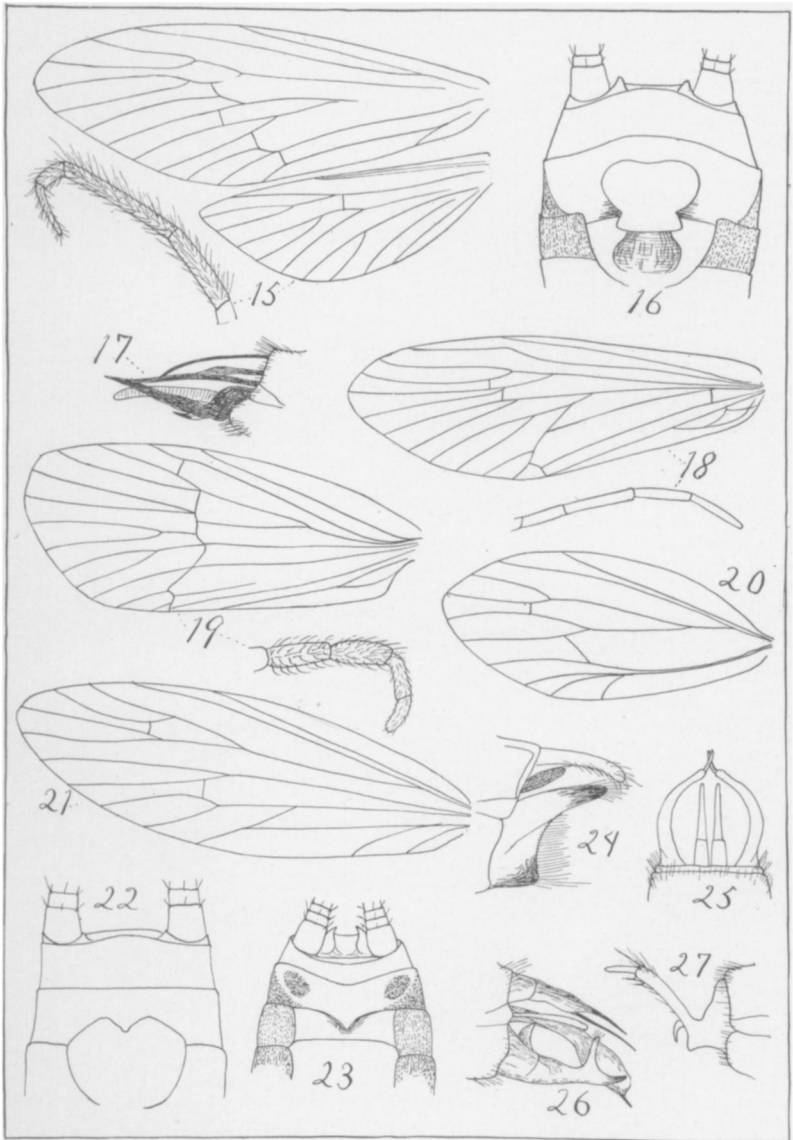
- Fig. 1. *Embia californica*, dorsal view of insect.  
 " 2. *Hydropsyche oslari*, genitalia of male.  
 " 3. *Colpotaulius medialis*, ♂ side, ♀ ventral view.  
 " 4. *Hydropsyche slossonæ*, genitalia of male from above.  
 " 5. *Polycentropus dispar*, tip of abdomen from above.  
 " 6. *Hydropsyche hageni*, upper plate of male genitalia.  
 " 7. " *slossonæ*, genitalia of male.  
 " 8. " *cockerelli*, genitalia of male.  
 " 9. " " male genitalia from above.  
 " 10. " *hageni*, head from in front.  
 " 11. " *scalaris*, male genitalia from above.  
 " 12. " *hageni*, male genitalia and tip of penis.  
 " 13. " *scalaris*, male genitalia.  
 " 14. " *bifida*, male genitalia and upper plate.

## PLATE II.

- Fig. 15. *Notiomyia mexicana*, wings and maxillary palpus.  
 " 16. *Perla valida*, venter of female.  
 " 17. *Gæra fuscula*, genitalia of male.  
 " 18. *Sphinctogaster lutescens*, forewing and palpus.  
 " 19. *Namamyia plutonis*, forewing and palpus.  
 " 20. *Notiopsyche latipennis*, forewing.  
 " 21. *Atomyia modesta*, forewing.  
 " 22. *Perla carolinensis*, venter of female.  
 " 23. " *californica*, venter of female.  
 " 24. *Plectrocnemia auriceps*, male genitalia.  
 " 25. *Atomyia modesta*, tip of abdomen from above.  
 " 26. *Arctopsyche irrorata*, genitalia of male.  
 " 27. *Notiopsyche latipennis*, genitalia of male.



BANKS-NEUROPTEROID INSECTS.



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